

Soquel Demonstration State Forest

2020 Annual Report



Angela Bernheisel

Forest Manager

State of California

Department of Forestry and Fire Protection

Northern Region

San Mateo- Santa Cruz Unit (CZU)

Santa Cruz County



Summary

The CAL FIRE San Mateo-Santa Cruz Unit experienced a historic wildland fire, the CZU August Lightning Complex, that began on August 16 with several hundred lightning strikes in the two counties. The Complex grew by 43,000 acres within 16 hours from August 18 to 19, and at the peak of the fire over 77,000 people were evacuated in the Unit. The fire totaled 86,509 acres and destroyed 1,490 structures including 925 residences. Forest staff served for several weeks on multiple fire assignments over several months in the late summer and fall. Due to extreme weather, multiple wildfires burning throughout the state, and the drawdown of resources, the Forest was closed to all public access from August 23-September 17.



CZU August Lightning Complex view to the south on Highway 1 toward Waddell Creek

Table of Contents

Administration	3
Fire Prevention.....	6
Training	7
Timber Management.....	7
Research	8
Recreation.....	12
Education	13
Emergency Response and Law Enforcement.....	13
Annual Financial Summary (Form RM-25).....	14
Annual Report of Timber Cut (Form RM-23).....	17
Statistical Data	18

Administration

Forest staff included: Forest Manager Angela Bernheisel, Assistant Forest Manager Colin Noyes, half-time Office Technician Anna Cameron (whose position was upgraded in place to Staff Services Analyst in April), seasonal Forestry Aide Jay Snyder who started work June 1, and Retired Annuitant Fire Captain Sean Adams who worked on occasion to support fuel break and crew projects. Numerous meetings, trainings and events were canceled or postponed with shutdowns starting in mid-March. The forest was closed to recreation along with access to public open spaces, beaches and parks in Santa Cruz County from April 8-16 under an order from the county Public Health Officer. Staff were furloughed two days per month starting in July under a personal leave program through the end of the year.

Bernheisel continued supporting the Unit Management Team and assumed regular Unit Duty Chief coverage on a rotating schedule including an extended time during fire season. She coordinated with the other Demonstration State Forest Managers concerning recreation management issues. She worked with the new Public Information Officer (PIO) for the Unit, Cecile Juliette, on outreach concerning fire prevention, support for landowners of forested areas, and educational events. Bernheisel created news releases, updated social media accounts for the Unit and forest, and participated in CAL FIRE Statewide Information and Education meetings for PIOs. A map of the forest and the 2019 SDSF Annual Report were posted on the new CAL FIRE website.



Amaya Creek in the forest

The CZU August Lightning Complex was considered part of a “gigafire” including 367 known fires across seven counties, many sparked by thunderstorms on August 16-17, and burning more than 1 million acres. All forest staff were assigned to fire duties during this time. Bernheisel held continual Duty Chief coverage during the CZU August Lightning Complex from August 19 to September 22. Noyes had been on a fire assignment serving as Field Observer on the Apple Fire from August 1-15, and upon return was assigned to the CZU fire. Later Noyes was assigned to the North Complex Fire and then returned to work on the CZU Lightning fire for several weeks in Suppression Repair. Snyder worked as a Technical Specialist at Check-in and Demob in CZU, then worked on both the August Complex and Glass Fires, returning to regular duties at the forest on October 15. Cameron worked as a Technical Specialist for the Public Information Officers at the Fire Information Call Center helping to manage the volunteer-staffed phone call center and later working in-person at the Resource Assistance Center in downtown Santa Cruz answering questions from the public.



High severity burn in Año Nuevo Creek Watershed in San Mateo County within the CZU August Lightning Complex

Bernheisel and Noyes assisted with Forestry Aide interviews in February via teleconference. Forest staff attended Unit All Hands meetings in February and March that highlighted the fuel reduction work completed in the Unit in 2019.

Bernheisel continued as a member of the Santa Cruz Mountains Stewardship Network (SCMSN) for the fourth year. She met monthly with the Fire and Forest Health Team and attended meetings of the other SCMSN teams. The SCMSN is a region-wide

and cross-sector collaboration comprised of 23 organizations including local, state, and federal agencies, nonprofits, academia, business, community, and tribal groups ([Santa Cruz Mountains Stewardship Network](#)). The manager of the network, Dylan Skybrook, led a multi-county effort to develop a fine-scale vegetation map and other products that gained support in 2020 from Santa Clara and Santa Cruz Counties after much outreach was conducted in 2019 by the Network and the Golden Gate National Parks Conservancy. Bernheisel participated with the team focused on the fine scale vegetation map project and helped solicit funding from partners to fund the project.

Bernheisel led of the Coastal Region Prioritization Group (CRPG) of the California Forest Management Task Force (FMTF). Meetings were held via conference call in January, March, October and December. Bernheisel arranged for presenters at the meetings and along with Cameron, documented each meeting and provided meeting summaries to the members and FMTF. In May a survey for members and other stakeholders was conducted by Bernheisel and Sheena Sidhu, the Forest Health and Fire Resiliency Project Manager of the San Mateo Resource Conservation District, to collect information on current and planned projects with the goal of creating a priority project list for the FMTF. A working list of projects and their locations was developed from the surveys. The September meeting was postponed due to the CZU Lightning Complex, and many plans for projects changed because of the fires. CRPG meeting summaries were posted to the FMTF Regional Groups webpage.

The final steps for the land donation to CAL FIRE from Donald Barr were completed. CAL FIRE Tech Services coordinated the transaction through the Department of General Services (DGS) and the 17-acre land acquisition was finalized December 7. The forest office received documents delineating deeded land and access easements.

Plans were reviewed for the construction of a new Forest Office and Soquel Fire Station. Forest staff met with Technical Services engineers and Unit Management staff to review details of the plans and provide feedback and questions. Tech Services worked with Santa Cruz County on drainage and septic requirements. Ben Lomond Conservation Crews worked to prepare the site for a new well that was constructed by a DGS subcontractor in October. The forest office was temporarily moved into the Soquel Fire Station in June once Unit Management decided to house the engine crew at the Felton headquarters until the new station was ready.

The total precipitation recorded at the forest weather station for 2020 was 22.49 inches. The months with the highest rainfall were March (5.6") and April (5.51"). In 2020, fire season was extended to December 27 due to the continued dry conditions throughout the fall, and funding was extended to augment fire protection resources.

The weather station maintenance contract was renewed through IT for another three years with Western Weather, and Bernheisel worked with a weather technician to complete on-site calibration and servicing of the weather station in February. Data from

the weather station was reset to capture 5-minute rainfall in March. Public access to weather station data remained available online at [Soquel Demonstration State Forest weather underground website](#) and at [Soquel Demonstration State Forest weather website](#).

Forest vehicles included: a 2018 Dodge 2500 (D1707 Bernheisel), a 2017 Dodge 2500 (F1793 Noyes), a 2016 Ford F-150 that was assigned to forest staff including the Forestry Aides (F1796), a 2014 Yamaha Grizzly 450 ATV, a 1992 Built Rite utility trailer, a second utility trailer, a Bandit 150XP chipper, and two federal excess vehicles: a refurbished Kawasaki mule UTV, and a Yamaha Big-Bear ATV. A portable carport shelter was erected for the chipper to be stored at the office grounds, and the generator for the forest office and fire station was repaired in April. The bridge at Highland Way to the main forest entrance was inspected by Cal Trans in the spring and a favorable report was received.

Fire Prevention

Bernheisel, Noyes, Adams and Snyder worked with Ben Lomond Conservation Crews and SRA-funded project engines early in the year on fuel management and also assisted the Comstock Mill Road Association with road clean-up and chipping in late October.

SDSF executed an Interagency Agreement with the California Conservation Corps (CCC) for their crews to work on fuel reduction projects. The crews worked in January and February to finish the shaded fuel break along the forest boundary on Robinwood Lane and worked along Hihn's Mill Road beginning at the public parking area. Crew work with the CCC was suspended in March due to the shutdown, but crews returned to the forest in mid-June to work on road brushing and shaded fuelbreaks on Sulphur Springs Road, Comstock Mill Road and Amaya Creek Road. The CCCs completed 3803 hours of shaded fuelbreak and chipping at the forest from the beginning of 2019 through spring of 2020. A request for an additional Interagency agreement with the CCCs was submitted to the Business Services Office in late March and was eventually finalized in December for services through December 2022.

Bernheisel worked with the Amah Mutsun Land Trust (AMLT) to provide a new contract for archaeological site consultation, cultural resource planning, burn plot preparation, and education and demonstration for cultural burning at the forest. A contract was requested to BSO in March and executed in October, after many edits and additional verification to support the non-competitively bid aspect of the contract was completed. The contract was approved for services through December 2022.

Training

Noyes assisted with S212 chainsaw training in July and Snyder attended the course. Bernheisel attended online CAL FIRE Duty Chief Training in May. Forest staff completed online safety and EEO training. Bernheisel and Noyes completed training for first responders.

Forestry Assistant II Jessica Huang from the L.A. Moran Reforestation Center visited the forest in mid-November for an introduction to the State Forest program and functions of foresters working in CZU. Huang provided training and orientation to the seed cone collection program that she manages.

The Monterey Bay Search Dogs group held limited trainings for canines and conducted testing in July.

Timber Management

The Longridge Timber Harvesting Plan (1-18-047-SCR) that was approved in August 2018, was bid in March 2020 with no minimum bid required, and sold to Big Creek Lumber as the highest of three bidders for \$542.00/MBF for Redwood and \$0.10/MBF for Douglas-fir. Raptor surveys were completed by Noyes and Unit Environmental Scientist Mosher in the spring. The contract took long enough to be approved that the purchaser was under pressure to decline due to the limited number of Licensed Timber Operators in the region and the need to schedule operations efficiently for the season. Operations started later than usual due to late rains into May that affected road conditions.

Many field tours of the Longridge Timber Harvesting area were provided by forest staff. In May, small groups of forest neighbors were led on tours. Bernheisel led a tour of the timber operations for CZU PIO Cecile Juliette, Sacramento PIO Christine McMorrow and Stewart McMorrow from CAL FIRE Sacramento Headquarters. Noyes hosted a tour for the Big Creek Lumber sawmill manager.

The sale included replacing a large culvert at Sulphur Springs Creek that was failing and represented the last high priority road project to be completed that was identified in the 2016 forest-wide roads assessment. The 30-inch culvert was replaced with a plastic 60-inch culvert. Forest practice inspectors performed inspections in June. The last log loads from the Longridge plan were hauled in early July. Erosion control measures were installed in preparation for winter. The final cutting report recorded a total of 759.07 MBF of redwood and 49.76 MBF of Douglas-fir, plus 10 cords of hardwood removed, bringing in \$411,620.92 in revenue to the Forest Resource Improvement Fund (FRIF).

Forest staff continued work on a new timber harvesting plan in the Sulphur Springs area of the forest, with the plan to incorporate prescribed burning and research

to further the goals of the Forest Carbon Plan by answering questions about scaled-up treatments across landscapes on the Central Coast.

Bernheisel collaborated with interested Registered Professional Foresters in the Southern Subdistrict to propose a change to the Forest Practice Rules of FPR 917.4(d) which prohibits the use of prescribed burning in a THP. The rule change was considered by the Board and eventually passed to be in effect in 2021. This will allow for prescribed burning to be included as part of a THP.

Bernheisel coordinated with American Forests for them to fund the growing of 50,000 redwood seedlings at the L.A. Moran Reforestation Center for landowners to replant acreage burned in the CZU Lightning Complex. The Santa Cruz County Resource Conservation committed to assist with the coordination and eventual distribution of seedlings.

The Intensive Forest Inventory that was completed in December 2018 continued to be under review by CAL FIRE State Forest Biometrician Jeff Leddy. Personnel changes and other priorities have delayed the project.

Thirteen firewood permits (Class 1 Timber Sales) were issued in 2020 for a total of 21.25 cords at \$20 per cord, totaling \$425 in revenue to FRIF.

Research

Fish sampling in the East Branch of Soquel Creek was completed in October by a fisheries biologist, his staff and a volunteer. Unit Environmental Scientist Matthew Mosher assisted with the electro-fishing work and completed a Fish Population report for 2020 that adds to the data collection in the forest since 1993. Mosher reconciled previous differences in methodology and data analysis used by the various researchers conducting electrofishing over the past 27 years. Mosher also worked with forest staff to collect data on water temperatures in Soquel Creek as part of the annual instream monitoring. CAL FIRE VIP Photographer Kara Capaldo captured images of the research work.



Electro-fishing in the East Branch of Soquel Creek

Retired CAL FIRE Captain Lawrence Erickson continued to lead herpetological survey and monitoring projects that he began at SDSF in 2010. In addition to recording and memorializing observations into the Herpetological Education and Research Project (HERP), they also conducted egg mass counts of the Foothill Yellow-legged Frog (FHYLF) (*Rana boylei*) and began a formalized population density study of the California Giant Salamander (*Dicamptodon ensatus*).

In March, the California Fish and Game Commission recognized six clades of the Foothill Yellow-legged Frog and approved new Endangered Species Act protections for five of them which included the West/Central Coast clade found in SDSF. Monitoring the population of this species became even more important, and by counting egg masses, the researchers monitored the level of reproductive females within the population using a “hands off” approach.

The work with the California Giant Salamander, a California Species of Special Concern, involved testing a new research protocol developed by Erickson to establish baseline population densities of larval *D. ensatus* and monitor their status. Through surveys, researchers also accumulated critical habitat data for this currently poorly understood species. According to Erickson, SDSF served as an ideal study site for this research.



Volunteers surveying for California Giant Salamanders in Amaya Creek (left) and measurements of *Dicamptodon ensatus* (right) in summer 2020

In total, there were 13 survey days completed including both upland and riparian habitats, 102 search hours logged, 1388 recorded observations, and 98 records entered into the HERP database. There were four California Natural Diversity Database records submitted, accounting for 229 individual observations of either California Species of Special Concern or California Endangered Species at the forest.



California Giant Salamander larva observed in Amaya Creek in January 2020 (left) and Foothill Yellow-Legged Frog egg mass observed in Soquel Creek in the spring (right)

All of the herpetology fieldwork was conducted under a CDFW Scientific Collecting Permit and safety protocols were followed during surveys as well as decontamination procedures for footwear and equipment before entering waterways. Fewer volunteers participated in 2020 than in previous years, and Mosher helped with staffing when available.

Bernheisel coordinated with Professor Janet Foley from the University of California Davis School of Veterinary Medicine to begin a new research project at the Forest with a

PhD candidate. The focus of the research was on tick populations pre- and post-fire, with a prescribed burn planned for 2021 at the forest. The research also planned to consider the safety and risks of infections from ticks to those who work in the forest, as well as the environmental factors of fuel treatments, tick vectors and hosts. Research from Dr. Foley's lab has been conducted at the forest on blood borne pathogens since 2009.

Bernheisel collaborated with Cal Poly staff to include SDSF in a research grant as part of a larger investigation about Sudden Oak Death and forest health at multiple locations. The proposal was to study forest treatments in the Sulphur Springs Timber Harvesting Plan. In December, Bernheisel led a field tour for researchers of the potential sites for vegetation treatment in the Sulphur Springs area.

CGS Geologist Cheryl Hayhurst completed a monitoring report for the 2017-18 Large Woody Habitat Complexity and Streambank/Road Repair Project that included annual physical reporting, hydrologic discussion and expanded thalweg survey graphs for each site to allow for easier observation of changes in the creek. Forest staff toured the Large Woody Habitat sites in December with CGS and Resource Conservation District representatives to review the status of the project.



Large Woody Habitat Project tour of Soquel Creek in December



Steelhead in Soquel Creek

Recreation

Forest staff coordinated with the Mountain Bikers of Santa Cruz (MBoSC) to work on the new Sawpit Trail with volunteer workdays and drop-in Fridays in January and February. A section of the trail was rerouted in 2020 after the Meridian THP operations finished in 2019. The trail had been closed since spring 2017 and reopened May 26, 2020. MBoSC added a new direction for their organization to expand from its origins as a bike club to include land stewardship services. MBoSC also assisted with the CZU Lightning Complex by organizing volunteers to help answer phones at the Fire Information Call Center in 4-hour shifts over 13 days.

Interest in mountain bike recreation increased sharply in 2020 partly due to the extended closure of State Parks. Trail etiquette and visitor recommendations were provided to phone inquirers and on the forest Facebook page. Several requests were received for permission to use ebikes for ADA access to the forest trails. After much deliberation and consultation with CAL FIRE attorneys, State Forest Program staff decided to not allow the use of ebikes as “other power-driven mobility devices”. The conclusion was reached that it would not be reasonable nor safe and that the use would fundamentally alter the nature of the trails and other services that SDSF is set up to provide.

Special Use Permits were postponed in 2020 due to the shelter-in-place orders from county health agencies. After the forest was closed to all recreational visitors from April 8-16, there were record numbers of visitors. Signs and barricades were posted “No parking, Fire Lane” to ensure adequate emergency access.

During the CZU Lightning Complex, the forest was closed to all public access and recreation August 23-September 17, along with neighboring portions of the Forest of Nisene Marks State Park, due to poor air quality from wildfires and the drawdown of local resources. A joint news release with State Parks was posted to social media and

the CAL FIRE SDSF webpage, and signs were posted throughout the forest and at the forest office. Several inquiries were received during the closure.

Mushroom foraging permits were requested by increasing numbers of new and returning visitors. Cameron attended the online meeting of the Fungus Federation of Santa Cruz in December to provide orientation and recommendations for forest visitors. A total of 93 mushroom gathering permits were issued for personal and educational use in 2020.

Education

Bernheisel and Noyes continued to attend monthly meetings of the local group from the California Licensed Foresters Association (CLFA), including online and outdoor meetings. In October CLFA organized a post fire tour of the CZU Lightning Complex area and Bernheisel attended.

Bernheisel coordinated with UC Extension and partners who organized a Forest Stewardship Workshop for the Santa Cruz Mountains session in the fall. The workshop was held mostly online with one in-person field meeting on neighboring private timber property on October 10. Participants toured a managed forest and practiced forestry skills for assessing their timber lands. Information on post-fire recovery in the Santa Cruz Mountains was added to the webinars. Local RPFs, Nadia Hamey and David VanLennep help lead the field workshop.

Bernheisel led a field trip for staff of San Mateo County Parks in late September that highlighted different managed stands at various stages of time post-harvest. San Mateo County Parks was developing a forest health plan that included management such as timber harvesting and other treatments to make the parks more resilient to fire and forest health impacts. Bernheisel also led a field tour in November for new staff at the Santa Cruz RCD working on forest health and watershed management.

Emergency Response and Law Enforcement

In the spring, the forest signboard at Aptos Creek Fire Road and Ridge Trail (at the entrance to the forest from The Forest of Nisene Marks State Park) was vandalized. Additionally, illegal firewood cutting was observed along Comstock Mill Road and staff increased patrols in the area. A building on the Noren property owned by CAL FIRE was vandalized in April and staff secured the area. CAL FIRE Prevention Officers issued warnings and citation to visitors using ebikes, and new more permanent "no ebikes" signs made of metal were posted at the main public entrances on Highland Way and Ridge Trail. Staff provided more days of educational outreach to mountain bikers in efforts to decrease the unauthorized use of ebikes in the forest.

CAL FIRE engines and the Loma Prieta Fire and Rescue Volunteers responded to 22 requests for medical aid from injured mountain bikers in 2020. This more than doubled

the ten of requests received in 2019. Seven of the incidents in 2020 occurred in June. Six injuries occurred on the Flow Trail, seven on Ridge Trail, and two on Braille Trail, and two incidents involved patients transported in air ambulances. Patients in 11 of the 22 incidents declined ambulance transport against medical advice but asked to be transported to a personal vehicle in the parking area. Forest staff were made aware that several mountain biking injuries did not involve 911 calls or requests for medical aid, so the actual number of injuries was unknown.

Annual Financial Summary (Form RM-25)

Soquel Demonstration State Forest 2020 Calendar Year

Type	Expenditures	Revenues
Sales: Class 1	0	\$425.00
Sales: Class 3	0	\$411,620.92
Sales: Map	0	0
Sales: Camping Fees	0	0
Sales: Special Use Permits	0	0
Sales: Miscellaneous	0	0
Road Use Fees	0	0
Administration: Personnel	\$326,327	0
Administration: Base Operating	\$43,122	0
Capital Investment: Recreation	0	0
Capital Investment: Roads	0	0
Capital Investment: Facilities (other than Recreation Infrastructure)	0	0
Capital Investment: Reforestation and Timber Stand Improvement	0	0
Capital Investment: Land	0	0
Surveying	0	0
Research and Demonstration	0	0

Type	Expenditures	Revenues
In-Lieu Property Tax (based on current fiscal year Property Tax bill)	\$7445.16	0
Yield Tax (paid by timber purchaser)	0	0
Total	\$ 376,894	\$412,045.92
Balance Total	0	\$35,151.92

Annual Report of Timber Cut (Form RM-23)

Soquel Demonstration State Forest

Commercial Sales from January 1, 2020 to December 31, 2020

Forest Products Convertible to Board Feet

Product (give dimensions)	Conversion Factor	Number of Pieces, Cords, Lineal Feet, etc.	MBF	Value
MBF	0	0	808.83	\$411,420.92
Cords	0	31.25	0	\$625
Christmas Trees	0	0	0	0
Posts (size)	0	0	0	0
Shingle Bolts	0	0	0	0
Poles (size)	0	0	0	0
Grape Stakes	0	0	0	0
Shakes	0	0	0	0
TOTALS	0	31.25	808.83	\$412,045.92

Miscellaneous Forest Products- Not Convertible to Board Feet

Kind	Unit	Quantity	Value
Firewood	Cord	21.25	\$425
Hardwood	Cord	10	\$200
Seedlings	Each	0	0
Totals	cords	31.25	\$625

No Forest Products were cut for Department Use (i.e. fire stations).

Approved by: Angela Bernheisel

Title: Forest Manager

Signature: *Angela Bernheisel*

Date submitted: 9/23/2021

Statistical Data

Soquel Demonstration State Forest

2020 Calendar Year

Administration: Number of Cases of Rights of Way, Leases, or Trespass Cases processed or Pending: 0

Protection

Number of Fires: 0

Acres Burned: 0

Fire Patrol Person-Days: 40

Number of Campfire Permits Issued: 0

Number of Trees Treated for Insects: 0

Number of Acres Covered: 0

Control Methods Used: none

Number of Contract Acres Treated for Disease: 0

Number of State Acres Treated for Disease: 0

Number of Pest Detection Reports Submitted: 0

Number of Snags Felled or Removed for Hazard Reduction: 0

Acres Treated for Hazard Reduction: 10

Roadsides Treated for Hazard Reduction (in miles): 2

Salvage Volume (mbf): 0

Acres of Slash Abated or Cleanup for Hazard Reduction: ?

Fuel Treatment Acres: 10

Timber Stand Management

Number of Timber Sales Class 1 (Firewood Permits): 13

Number of Timber Sales Class 3: 1

Number of Trees and Acres Pruned, Thinned or Released: 0

Number of Acres Planted: 0

Number of Trees Planted: 0

Inventory Plots Established. Size of Plot: 1/5 acre.

Number of Inventory Plots: 0

Acres Cruised: 0

Engineering. Boundary surveyed and Posted-to-Date: 42%

Outreach, Number of Occasions: 10

Events, Number of Occasions: 0

Tours, Number of Occasions: 5

Number of Experiments and Demonstration Projects Approved: 10

Number Completed: 3

Experiments and Demonstrations Reports Submitted: Fish population, Stream Temperature Monitoring, Herpetological research project 2020 summary report

Capital Improvements

Main Timber Access Roads Total: 8.8 miles

Spur Timber Access Roads Total: 7 miles

Firebreaks New Construction:

Firebreaks Total: 7 miles

Trail New Construction:

Trails Total: 12.2 miles

Bridges New construction: 0

Bridges Total Number: 3

Campgrounds Total: 1

Picnic Grounds Total: 4

Picnic Units Total: 9

Recreation

Hiking: 5,000 Visitor Days

Mountain Biking: 35,000 Visitor Days

Total: 40,000 Visitor Days